

WHAT IS CLAIMED IS:

1. A computerized component architecture for medical device systems,
comprising:

a body of software components having standardized software interfaces to
medical device interface instruments and IMDs; and

at least one hardware module capable of executing the software components,
with the at least one hardware module being deployable to a plurality of medical
device interface instruments; said hardware module having means for communication
with a data communications network, and with a medical device external to the
hardware module.

2. The computerized component architecture for medical device systems of claim
1, wherein at least one hardware module has processing and telemetry capabilities.

3. The computerized component architecture for medical device systems of claim
1, wherein at least one hardware module is installed within an interface instrument, to which
it is deployable.

4. The computerized component architecture for medical device systems of claim
1, wherein the component software architecture is optimized to be executed on the hardware
module.

5. In an IMD administration network in which one or more interface instruments
are in communication with a plurality of medical devices applied to one or more patients, a
computerized software component system, comprising:

a defined body of interface definitions;

at least one body of executable code capable of instructing or operating an IMD
interface instrument, the body utilizing at least one of the interface definitions to
communicate with the instrument or with a computerized IMD administration network.

6. A computerized component architecture for medical device systems,
comprising:

a body of software components having standardized software interfaces to
medical device interface instruments;

a computerized network of processing equipment with at least two nodes
remote from each other; and

means for the execution of software components via these interfaces from
remote processing equipment.

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7. The computerized component architecture of claim 6, further comprising a hardware module capable of executing the software components, said hardware module being deployable to a plurality of medical device interface instruments.

8. The computerized component architecture of claim 7, wherein said hardware module is integrated within at least one medical device interface instrument.

9. A software component-based IMD administration and control instrument, comprising:

a master processing instrument having network communications capabilities;
an electronics module having telemetry and processing capabilities installed within said master processing instrument;

at least one component software module resident within the memory of said electronics module;

10. The component-based IMD administration and control instrument of claim 9, wherein the master processing instrument comprises an IMD programmer.

11. The component-based IMD administration and control instrument of claim 9, wherein the master processing instrument comprises an IMD extender.

12. The component-based IMD administration and control instrument of claim 9, wherein the master processing instrument comprises an IMD interactive remote monitor.

13. An IMD monitoring and administration network environment implementing reusable and extendable software, comprising:

at least one IMD in communication with at least one IMD interface device;
at least one of said IMD interface device having installed interface software in message-passing relation with at least one network interface;
at least one of said network interface being in message-passing relation with at least one user node.

14. The IMD monitoring and administration network environment of claim 13, wherein the message-passing relation between the interface software installed on said IMD interface and said network interface is implemented by XML document transmission.

15. The IMD monitoring and administration network of claim 13, wherein the message-passing relation between the interface software installed on said IMD interface and said network interface is capable of transmitting analog representations of patient waveform data.

16. The IMD monitoring and administration network environment of claim 15, wherein the analog representations of patient waveform data transmitted via the message

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passing relation between the interface software installed on said IMD interface and said network interface is implemented by SVG document transmission.

17. The IMD monitoring and administration network environment of claim 15 further comprising a live waveform software component; and a client live waveform viewer software component wherein graphical information is transmitted from the live waveform software component to the client live waveform viewer software component.

18. The IMD monitoring and administration network environment of claim 17, wherein the graphical information is transmitted via a markup language.

19. The IMD monitoring and administration network environment of claim 18, wherein the graphical information is transmitted via SVG.

20. A method of implementing a compartmentalized, robust IMD monitoring and administration network, comprising the steps of:

establishing a data communications link between at least one IMD and one computer via an interface device;

programming at least one software component to execute on the interface device, the software component being capable of message-passing communications over data communications media;

programming at least one software component to execute on a linked computer, said software component being capable of operating in a message-passing relationship with at least one software component designed to execute on the interface device.

21. The method of implementing a compartmentalized, robust IMD monitoring and administration network of claim 20, wherein the message-passing relationship is effected using a markup language.

22. The method of implementing a compartmentalized, robust IMD monitoring and administration network of claim 21, wherein the message-passing relationship is effected using XML.

23. The method of implementing a compartmentalized, robust IMD monitoring and administration network of claim 20, wherein the message-passing relationship is effected using client component function calls to public functions of the software component being messaged.

24. The method of implementing a compartmentalized, robust IMD monitoring and administration network of claim 23, wherein the software component being messaged is implemented in an object-oriented programming language.

25. The method of implementing a compartmentalized, robust IMD monitoring and administration network of claim 24, wherein the software component being messaged is implemented in a manner where it may return a software object in response to the public function call.

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